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EXAMINER

LY, ANH VU H

ART UNIT

PAPER NUMBER

2667

DATE MAILED: 09/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/845,215

Applicant(s)

WISNER ET AL.

Examiner

Anh-Vu H Ly

Art Unit

2667

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20 and 21 is/are allowed.
- 6) ☒ Claim(s) 1,2,4-11 and 13-19 is/are rejected.
- 7) ☒ Claim(s) 3 and 12 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>07/17/01; 02/27/03</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Objections

1. Claim 5 is objected to because of the following informalities: in line 4, examiner believes “coordinating the activation the second data center” should be changed to - -coordinating the activation of the second data center- -. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 1-2, 5-7, 11, and 14-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Yanai et al (US Patent No. 6,173,377 B1). Hereinafter, referred to as Yanai.

With respect to claims 1 and 11, Yanai discloses (col. 7, line 44 – col. 9, line 54 and Fig. 1) a system for providing resources includes a first and primary data storage system 14, which is located in a first geographic location (a first data center for providing a network service at a first

geographic location), including a primary data storage system controller 16 (a first file server for providing access to resources) for accessing the stored information and a storage device 20 for storing information (a first data storage unit including active resources configured for active use). Further, as shown in Fig. 1, a secondary data storage system 46 (a second data center for providing the network service at a second geographic location), which is located at a second site geographically removed from the first site. The secondary data storage system 46 includes a secondary data storage system controller 44 (a second file server for providing access to resources) and a secondary data storage device 48 including a plurality of storage devices 50a-50c. Herein, the secondary data storage device 48 also acts as standby storage device for the first data storage device 20 (a second data storage unit including standby resources configured for standby use in the event that the active resources can not be obtained from the first data storage unit). Yanai discloses in Fig. 1, either host A or host B has alternate paths for accessing resources located at two different systems 14 and 46. Herein, each system includes file server and storage device (a switching mechanism for providing communicative connectivity to the first file server, second file server, first data storage unit, and second data storage unit). Yanai discloses in Figs. 13A-B, a flowchart showing the invocation and execution of the application based recovery program when the primary system fails (failure sensing logic for sensing a failure condition in at least one of the first and second data centers and generating an output based thereon). Yanai discloses in Fig. 1 that host A can either access to the resources provided in the primary data storage system 14 or to the secondary data storage system 46 when the primary data storage system 14 failed by using the alternate path 58 (an intelligent controller coupled to the

switching mechanism for controlling the flow of data through the switching mechanism and for coordinating fail over operations, based on the output of the failure sensing logic).

With respect to claim 2, Yanai discloses in Fig. 1, that controller 16 couples to the first storage device 20 (logic for coupling the first file server to the first data storage unit in the absence of a detected failure condition).

With respect to claims 5 and 14, Yanai discloses in Fig. 1 that host A can either access to the resources provided in the primary data storage system 14 or to the secondary data storage system 46 when the primary data storage system 14 failed by using the alternate path 58 (logic for sensing a failure condition affecting the entirety of the first data center, and for coordinating the activation of the second data center in response thereto).

With respect to claims 6 and 15, Yanai discloses (see Abstract) that data written to a primary volume is automatically sent over the link to a corresponding secondary volume (first data storage unit further includes replication logic for transmitting changes made in the first data storage unit to the second data storage unit).

With respect to claims 7 and 16, Yanai discloses (see Abstract) that data written to a primary volume is automatically sent over the link (logic for coupling the first data storage unit to the second data storage unit to serve as a communication route for transmitting changes made

in the first data storage unit to the second data storage unit) to a corresponding secondary volume.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 4 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanai et al (US Patent No. 6,173,377 B1) in view of Vahalia et al (US Patent No. 6,192,408 B1).

Hereinafter, referred to as Yanai and Vahalia.

With respect to claims 4 and 13, Yanai discloses in Fig. 1, a system for providing resources includes a first and primary data storage system 14 and a secondary data storage system 46. As shown in Fig. 1, disk adapter 30 provides access to storage device 20. Herein, the system may include more than one adapter 30 and more than one storage device 20 (a plurality of active data movers for providing access to respective storage unit modules). Yanai does not disclose a plurality of standby data movers with respective active data movers and a control module for activating a standby data mover associated with at least one active data mover when a failure condition is detected in the at least one active data mover, as coordinated by the intelligent controller). Vahalia discloses in Fig. 22, a spare data mover is activated when a failure condition is detected in an active data mover. It would have been obvious to one having ordinary skill in the art at the time the invention was made to include and activate a spare data

mover when a failure condition detected for an active data mover in Yanai's system, as suggested by Vahalia, to provide backup when a failure occurs.

4. Claims 8-10 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanai et al (US Patent No. 6,173,377 B1).

With respect to claims 8-10 and 17-19, Yanai discloses in Fig. 1 that hosts A and B are remotely located and connected to the storage systems 14 and 46 via a plurality of signal paths. Yanai does not disclose that hosts A and B coupled to the storage systems via a WAN and wherein the switching mechanism comprises a fiber based fabric switch and/or a WAN based fabric switch. However, it is well known in the art that hosts or computers can couple to each other via the same network (LAN) or via different networks (WAN). Further, it should be understood that either LAN or WAN includes at least one or more switches and/or routers for forwarding data between hosts. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include the features of having the hosts access to the storage systems via wide area network which includes at least a fabric switch for relaying the information between different entities in Yanai's system, to provide broader coverage.

Allowable Subject Matter

5. Claims 3 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Claims 20 and 21 are allowed.

The following is an examiner's statement of reasons for allowance:

The prior art does not teach or fairly suggest wherein the intelligent controller includes logic for coupling the first file server to the first data storage unit in the absence of a detected failure condition and for coupling the first file server to the second data storage unit, which is located in the second data center, when a failure condition is detected pertaining to the first data storage unit, as specified in independent claims 20 and 21.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Fair (US Patent No. 6,718,481 B1) discloses multiple hierarchical/peer domain file server with domain based cross domain cooperative fault handling mechanisms.

Clowes et al (US Patent No. 5,633,999) discloses workstation-implemented data storage re-routing for server fault-tolerance on computer networks.


MacHardy, Jr. et al (US Patent No. 6,578,160 B1) discloses fault tolerant, low latency system resource with high level logging of system resource transactions and cross-server mirrored high level logging of system resource transactions.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh-Vu H Ly whose telephone number is 571-272-3175. The examiner can normally be reached on Monday-Friday 7:00am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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